



>>Entry Name: Sodium dichromate(VI) (Na₂Cr₂O₇)

Synonym(s): Sodium bichromate. Bichromate of soda. Sodium dichromate

CAS Registry Number: 10588-01-9

Na₂Cr₂O₇

Molecular Formula: Cr₂Na₂O₇

Molecular Weight: 261.967

Accurate Mass: 261.824957

Percentage Composition: Cr 39.70%; Na 17.55%; O 42.75%

Use/Importance: Widely used oxidising agent, esp. in org. synth. Used in textile manuf., in tanning, in corrosion inhibitors, in chromic acid and Sodium chromate(VI) (Na₂CrO₄) [HWZ06-V](#) manuf., as defoliant. Antiinfective agent

Physical Description: Orange cryst. Deliquescent in moist air

Melting Point: Mp 356.7°

Solubility: V. sol. H₂O

Other Data: Weakly paramagnetic. Dec. at 400°. ΔH_{f298}° (per Na₂Cr₂O₇) -1977 kJ mol⁻¹

Hazard & Toxicity: Cr^{VI} compounds are human carcinogens (IARC Group 1). MEL: long-term 0.05 mg m⁻³ (as Cr). Must be stored away from combustible materials, reacts violently with Ac₂O, EtOH/H⁽⁺⁾, and a range of other substances. Corrosive and irritating to all tissues. Can cause eczematous dermatitis by repeated contact. Exp. nephrotoxic. Mutagenic props.

>>Derivative: Dihydrate

Synonym(s): Sodium dichromate dihydrate

CAS Registry Number: 7789-12-0

Molecular Formula: Cr₂H₄Na₂O₉

Molecular Weight: 297.998

Accurate Mass: 297.846087

Percentage Composition: Cr 34.90%; H 1.35%; Na 15.43%; O 48.32%

Use/Importance: Commercially available oxidant

Physical Description: Bright orange-red monoclinic cryst.

Solubility: Sol. H₂O, AcOH, DMSO

Other Data: Dehydrates above 84.6°. Forms acidic solns.

Aldrich: 23929-1

Fluka: 71490

Sigma: S9791

References:

- Aldrich Library of FT-IR Spectra*, 1st edn., 1985, **2**, 1290D, (*ir*)
Mellor Compr. Treat. Inorg. Theor. Chem., 1931, **11**, 325, (*rev, bibl*)
Nouveau Traite de Chimie Minerale, Pascal, P., Ed., Masson et Cie, Paris, 1959, **14**, 224, (*rev, bibl*)
Gmelin Handbook Inorg. Chem., Syst. No. 52, 1962, 477, (*rev, bibl*)
Wiberg, K.B., *Oxid. Organ. Chem.*, Academic Press, New York, 1965, 90, (*use*)
Fieser and Fieser's Reagents for Organic Synthesis, Wiley, 1967, **1**, 710; **6**, 124; 225; **2**, 265; **1**, 1059, (*uses*)
IARC Monog., 1980, **23**, 205; *Suppl. 7*, 1987, 165; 1990, **49**, 49, (*tox, rev*)
Cainelli, G. *et al.*, *Chromium Oxidations in Org. Chem.*, Springer-Verlag, Heidelberg, 1984, 29, (*use*)
Gosselin, R.E. *et al.*, *Clinical Toxicology of Commercial Products*, 5th Ed., Williams and Wilkins, 1984, 109, (*tox*)
Lang}ard, S. *et al.*, *Handb. Toxicol. Met.*, (Eds. Friberg, L. *et al*), 2nd edn., Elsevier, 1986, 185, (*tox, rev*)
Page, B.J. *et al.*, *Kirk-Othmer Encycl. Chem. Technol.*, 4th edn., Wiley, 1991, **6**, 263, (*manuf, rev*)
Cohen, M.D. *et al.*, *Crit. Rev. Toxicol.*, 1993, **23**, 255, (*tox, rev*)
Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1352
Bretherick, L., *Handbook of Reactive Chemical Hazards*, 4th edn., Butterworths, 1990, 3948
Chemical Hazards of the Workplace, 3rd edn., (eds. Proctor, N.H. *et al*), Van Nostrand Reinhold, 1991, 178
Luxon, S.G., *Hazards in the Chemical Laboratory*, 5th edn., Royal Society of Chemistry, 1992, 332
Lewis, R.J., *Sax's Dangerous Properties of Industrial Materials*, 8th edn., Van Nostrand Reinhold, 1992, SGI000; SGI500